Site Need Statement

General Reference Information	
1 *	***Need Title*:** Radiation Survey
2 *	***Need Code:*** RL-WT109
3 *	***Need Summary*:** A radiation dose rate survey is required when performing waste transfers through transfer lines. This survey must be performed periodically along the length of the line and consumes time and resources. A device that would remotely monitor the dose rates along the transfer line could save time, money, and reduce the radiation exposure to personnel.
4 *	***Origination Date*:** November 2001
5 *	***Need Type*:** Technology Need
6	***Operation Office*:** Office of River Protection (ORP)
7	***Geographic Site Name*:** Hanford Site
8 *	***Project*:** Safe Storage and Retrieval ***PBS No:*** RL-TW03
9 *	***National Priority:*** ____1. High - Critical to the success of the EM program, and a solution is required to achieve the current planned cost and schedule. _X_2. Medium - Provides substantial benefit to EM program projects (e.g., moderate to high life-cycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays). ____3. Low - Provides opportunities for significant, but lower cost savings or risk reduction, may reduce the uncertainty in EM program project success.
10	***Operations Office Priority*:**
Problem Description Information	
11	***Operations Office Program Description*:** The overall purpose of the safe-storage function is to operate and maintain the double shell tank (DST) and single shell tank (SST) farms in a safe and compliant manner until the contained wastes are retrieved and the tank farms are ready for closure. This includes performing day-to-day operations, maintaining and upgrading infrastructure, resolving safety issues, assessing tank integrity, characterizing the waste, and managing the DST waste inventory. This function also includes interim stabilization of selected SSTs. The end state of safe storage is containment of DST and SST tank wastes in a manner that supports safe waste retrieval for final waste disposal; tank-farm structures, including DSTs and SSTs, ready for final disposal and closure; and tank farms amenable and ready for the mitigation of any environmental releases that occurred during storage and retrieval of tank waste.
12 ** ** **	***Need/Problem Description*:** **Program Baseline Summary (PBS) No.:** TW03 **Work Breakdown Structure (WBS) No.:** 5.01.03.01 **TIP No.:** The needed devices described in this need statement are needed at any time in the Tank Farms mission, until the end of tank retrieval (two decades at least).
13	***Functional Performance Requirements*:** TBD
**	***Schedule Requirements:*** Ongoing operational need.
14	***Definition of Solution*:**
15 *	***Targeted Focus Area*:** Tanks Focus Area (TFA)
16	***Potential Benefits*:**
17 *	***Potential Cost Savings*:** $110K to $1M per year
18 *	***Potential Cost Savings Narrative*:** The cost savings will come primarily from less field labor-intensive surveys.

**	***Technical Basis:*** As Low As Reasonably Achievable (ALARA) considerations for personnel radiation exposure are a corner stone of worker safety and engineering considerations for equipment design and operation in the Tank Farms.
19	***Cultural/Stakeholder Basis*:**
20	***Environment, Safety, and Health Basis*:** The proposed development will result in less time spent in radiation/contamination areas by the workers.
21	***Regulatory Drivers*:**
22 *	***Milestones*:** None specifically impacted.
23 *	***Material Streams*:** TW03 - Sludge, salt, liquid (RL-HLW-20)
24	***TSD System*:** Double Shell Tank and Single Shell Tank systems.
25	***Major Contaminants*:** Pu-238, 239, 240, 241; AM-241; U-238; C-14; Ni-59/63; Nb-94; Tc-99; I-129;Cm-242; Sr-90; Cs-137; Sn-126; Se-79; chromium; nitrate; nitrite; complexants (EDTA/HEDTA)
26	***Contaminated Media*:** Tank waste consisting of high molarity sodium hydroxide/sodium nitrate solution containing saturated saltcake and/or sludge.
27	***Volume/Size of Contaminated Media*:** The single shell tanks are generally 75 ft. in diameter, and up to 40 feet deep with their tops buried about 10 feet below the ground surface. All double shell tanks are 75 feet in diameter, and about 40 feet deep, and are similarly buried.
28 *	***Earliest Date Required*:** FY 2002
29 *	***Latest Date Required*:** End of Tank Farms mission (post 2020)
Baseline Technology Information	
30	***Baseline Technology(ies)/Process*:** Technology Insertion Point: The needed devices described in this need statement are needed at any time in the Tank Farms mission, until the end of tank retrieval (two decades at least).
31	***Life-Cycle Cost Using Baseline*:**
32	***Uncertainty on Baseline Life-Cycle Cost*:**
33	***Completion Date Using Baseline:***
Points of Contact (POC)	
34	***Contractor End User POCs*:** D.R. (Darin) Hekkala, CHG, 509-373-2360, F/509-373-0181, Darin_R_Hekkala@rl.gov
35	***DOE End User POCs*:** M.J. (Mike) Royack, DOE-OSD, 509-376-4420, F/509-376-9118, Michael_J_Royack@rl.gov
36**	***Other Contacts:*** K.A. (Ken) Gasper, CHG, 509-373-1948, F/509-376-1788, Kenneth_A_Ken_Gasper@rl.gov

*Element of a Site Need Statement appearing in IPABS-IS

**Element of a Site Need Statement required by CHG